

# **A Study of the Dairy Industry in India**

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## **Abstract**

India, one of the developing economies where agriculture is a predominant occupation of the large number of masses. Agriculture in India is a gamble of monsoon. Though it provides employment to nearly 50% of population, the farmers are in plightful situations. The farmers are poor and debt ridden. They commit suicides as unable to cope up the adversaries of man and the nature. In such a scenario they need to have another option of earning. Dairy provide the way to come out from the adverse situations. In the present research article efforts are made to highlight the dairy business as one of the promising allied sector of agriculture.

**Key words: Agriculture, Dairy .**

## **Introduction:**

**Agriculture Sector** is one of the most significant pillar of the Indian economy. Agriculture is the only means of living for almost two-thirds of the employed class in India. As being stated by the economic data of financial year 2010-11, agriculture and its allied sectors has acquired 14.5 percent of India's GDP.

The agriculture sector of India has occupied almost 43 percent of India's geographical area.. Despite a steady decline of its share in the GDP, agriculture is still an important sector and plays a significant role in the overall socio-economic development of the country.

Indian agriculture is at crossroads and one of the major challenges is to reverse deceleration in agricultural growth. Main reason for deceleration in agricultural growth is declining investment particularly public investment in agriculture research and development and irrigation, combined with inefficiency of institutions providing inputs and services including rural credit and extension. Other factors such as land fragmentation, out-dated tenancy laws, lack of modern market and rural infrastructure, inappropriate input pricing policies, etc. are also responsible for agrarian and ecological crisis in the country. The crisis of stagnation in agriculture causes the increase in the poverty in rural areas. The Indian farmer is heavily

indebted and poor. It's a high time to change the plight condition of the Indian farmers. This can be improved by adopting the allied activities of farming most scientifically and in organized manner. The concept of the allied business is not the new one. Animal husbandry ,dairying, fishing and other are the allied sectors which are contributing along with agriculture since many centuries.

Dairying is one of the most promising allied sector of the agriculture. India has one of the largest livestock population in the world. Fifty percent of the buffaloes and twenty percent of the cattle in the world are found in India, most of which are milk cows and buffaloes. Just because of the "Operation Flood" , the continuous and steady efforts adopted by the government contributed to make India the largest milk producing nation of the World. Present research paper is the work in the direction of evaluating the performance of Dairying industry of India. The focus is on the overall ingredients of the sector.

### **Objectives of the study:**

- 1) To study the overall milk production in India.
- 2) To evaluate the performance of the dairy business in India.
- 3) To find out the problems faced by dairy business.
- 4) To make an evaluation of the "Operation Flood" and its implication.

### **Sources of Data:**

The study is primarily based on secondary data. The data is collected from the different government reports and news collected from the various newspapers and magazines. Certain references are also taken from the different scholarly research articles published in the field.

### **Indian Dairy- A Promising Sector:**

India has one of the largest livestock population in the world. Fifty percent of the buffaloes and twenty percent of the cattle in the world are found in India, most of which are milk cows and buffaloes. Dairy development in India has been acknowledged the world over as one of modern India's most successful developmental programme. Today, India is the largest milk producing country in the world.

Milk and milk products is rated as one of the most promising sectors which deserves appreciation in a big way. When the world milk production registered a slow growth of 1 percent, India performed much better with 4.5 percent growth. The total milk production has reached the 121 million tones record in the fiscal year 2010-11..Consequently, the per day per capita milk availability has also increased from 124 grams in 1961 to 281 grams in 2010-11. The livestock sector contributed 3.93 per cent to the country's GDP and 20.71 per cent to agriculture GDP during the year 2009-10 (Economic Survey). Livestock as an integral component of economic and social life of the rural community.

### **Table 1: Share of livestock Sector in Gross Domestic Product:**

At current price in crore

Year	GDP(Total)	GDP( sector)	livestock	Percentage of Share
2004-05	2971464	119333		4.02%
2005-06	3389621	127518		3.76%
2006-07	3952241	142695		3.61%
2007-08	4581422	169296		3.70%
2008-09	5282086	188732		3.57%
2009-10	6133230	241177		3.93%

Source: National Account Statistics 2011, Central Statistical Organisation  
GOI

### Milk Production in India:

India is home to the world's largest dairy herd. However, the country still faces a production shortfall due to massive demand from the growing population and also low productivity of Indian cows. India ranks first in the milk production, but Indian dairy is a classic example of production by masses rather than mass production. The nation's milk supply comes from millions of small producers, dispersed throughout the rural areas. These farmers maintain, on an average, a herd of only two-three milch animals, comprising cows and or buffaloes. With an overall achievement of 121 million tonnes of milk in 2010-11 from cattle, buffaloes and goats and a per capita milk availability of 281 g/day, The Indian dairy scenario is constantly looking ahead & promises to take greater strides in making dairying more remunerative to the farmer. However, with the ever increasing population, it is estimated that the total milk production should be around 200 million tonnes by the year 2030 to meet the demand there would be still shortfall in the supply. The following table shows the overall production and the per capita availability of milk.

**Table 2: Milk Production in India**

Year	Milk Production (Million Tones)	Per capita availability(gram/day)
2000-01	80.6	220
2001-02	84.4	225
2002-03	86.2	230
2003-04	88.1	231
2004-05	92.5	233
2005-06	97.1	241
2006-07	102.6	246
2007-08	107.9	252
2008-09	112.2	258
2009-10	116.4	273
2010-11	121.8	281

Source: Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GO

## International Trade

The international dairy industry is highly protected through domestic support and export subsidies and does not provide an easy market access. A number of nontariff trade barriers (NTBs) are applied to deprive the developing countries from sharing the markets of developed nations.

In addition, there are issues of concern with the importing countries, related to acceptance of Indian products, harmonization of standards, transparency, retest and appeal provisions, technical assistance and data on reasons for rejections.

The export of milk products from India has increased from Rs.2.49 crores in 1990-91 to Rs.1018.63 crores during 2007-08 despite the fact that there are no special incentives for export except those that are generally available to all exports. Skimmed Milk Powder, Ghee and Cheese are the major products being exported from India . The major destinations of exports during 2007-08 were Bangladesh , USA , UAE, Egypt , China , Algeria , Morocco , Thailand , Philippines , Nepal , Serbia , Singapore , Oman , Yemen and Saudi Arabia . The European Union, New Zealand , Australia and US are the four major players in the export market, which account for nearly 85% of the world's total exports. Russia , African countries besides the SAARC countries are emerging markets for Indian dairy products.

As far as imports are concerned, the volume of milk products imported into India has not been of a level so as to significantly affect the competitiveness and interests of the domestic dairy industry. The comparative statement of export and import of milk and milk products including casein in value and quantity terms for India is given as follows: -

**Table 3: Export & Import of Milk and Milk products including casein in quantity and value terms for India**

Year	Export		Import	
	Qty. (thousand kgs.)	Value (Rs. in Lakh)	Qty. (thousand kgs.)	Value (Rs. in Lakh)
<b>2003-04</b>	13813.72	17023.87	17166.83	13389.01
<b>2004-05</b>	55597.06	62353.15	6932.45	5691.24
<b>2005-06</b>	86454.40	95855.69	3204.01	3750.10
<b>2006-07</b>	54028.26	64172.91	12788.23	11142.89
<b>2007-08</b>	84621.8	101862.74	3684.82	6144.85
<b>2008-09 (Apr to Sept)</b>	49903.49	63659.68	2080.85	3431.78

Source: National Dairy Plan 2007-08 To 2021-22

## Livestock Population in India

Dairy sector is economically and socially very significant in India due to the multi-functionality of dairy animals performing output, input, asset and socio-cultural functions. According to the 2007 Livestock Census, there are 166 million indigenous cattle, 33 million crossbred cattle and 105 million buffaloes in India. In this, the proportion of adult milch females

is 19, 43 and 46 %, respectively. The decade-wise trend in livestock population (1997-2007) shows a distinct shift in composition of dairy animal stock in favour of buffaloes and crossbred cattle, as their numbers increased by 5.91 and 6.05 million, respectively, while that of indigenous cattle declined by 1.8 million.

**Table 4: Livestock Population in India**

<b>Livestock Population in India by Species</b>									
<b>(In Million Numbers)</b>									
<b>Species</b>	<b>1966</b>	<b>1972</b>	<b>1977</b>	<b>1982</b>	<b>1987</b>	<b>1992</b>	<b>1997</b>	<b>2003</b>	<b>2007</b>
<b>Cattle</b>	176.2	178.3	180.0	192.5	199.7	204.6	198.9	185.2	199.1
<b>Adult Female Cattle</b>	51.8	53.4	54.6	59.2	62.1	64.4	64.4	64.5	73.0
<b>Buffalo</b>	53.0	57.4	62.0	69.8	76.0	84.2	89.9	97.9	105.3
<b>Adult Female Buffalo</b>	25.4	28.6	31.3	32.5	39.1	43.8	46.8	51.0	54.5
<b>Total Bovines</b>	<b>229.2</b>	<b>235.7</b>	<b>242.0</b>	<b>262.2</b>	<b>275.7</b>	<b>288.8</b>	<b>288.8</b>	<b>283.1</b>	<b>304.4</b>

Source : Livestock Censuses, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GoI

**Different breeds of cows and buffaloes used for milking in India:**

India is rich in its livestock wealth. It accounts for nearly 15.8% of the world cattle population, more than half of the world buffalo population. Breeds of Buffaloes and cows of Indian Origin and Breeding Tracts are given below:

**Table 5: The different breeds of the buffaloes:**

<b>Group</b>	<b>Breed</b>	<b>Breeding tract</b>
<b>Murrah type</b>	Murrah Nili Ravi	Rohtak, Jind, Hisar, Bhiwari, Sonapat (Hariyam) Ferozpur (Punjab)

<b>Gujarat</b>	Surti Jaffarabadi Mehsana	Kaira and Baroda Kutch, Jungarh & Jamnagar dist Mehsana, sabarkantha, Banaskantha Dist.
<b>Uttar pradesh</b>	Bhadawari Tarai	Bhadawari estate, Beh Tehsil in Agra, Gwalior & Etawah dist. Tarai region of U.P.
<b>Central India</b>	Nagpuri Pandharpuri Kalahandi Sambalpur	Nagpur, Akola, Amravati dist. South maharashtra, west A.P., north Karnataka Hilly region of Andra Pradesh and Orissa Bilaspur dist.
<b>South India</b>	Toda South Kanara	Nilgiri Hills West coast in Kerela

. Source : Livestock Censuses, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GoI

Indian cattle breeds of cattle classified in to three types

- a) Milch breeds / Milk breeds
- b) Dual Purpose breeds
- c) Draught breeds

**a)Milch Breeds / Milk Breeds :**

The cows of these breeds are high milk yields and the male animals are slow or poor work animals. The examples of Indian milch breeds are Shahiwal, Red Sindhi, Gir and Deoni The milk production of milk breeds is on the average more than 1600 kg. Per lactation.

**b) Dual Purpose Breeds :**

The cows in these breeds are average milk yielder and male animals are very useful for work. Their milk production per lactation is 500 kg to 150 kg. The example of this group are Ongole, Hariana, Kankrej, Tharparker, Krishna valley, Rathi and Goalo Mewathi.

**c) Draught breeds:**

The male animals are good for work and Cows are poor milk yielders are their milk yield as an average is less than 500 kg per lactation. They are usually white in colour. A pair of bullocks can haul 1000 kg. Net with an iron tyred cart on a good road at walking speed of 5 to 7 km per hour and cover a distance of 30 to 40 k.m per day. Twice as much weight can be pulled on pneumatic rubber tubed carts. The example of this groups are ONGOLE, Hariana ,Kankrej and Malvi

**Exotic breeds of cattle :**

Exotic breeds of cattle have been used in India on a fairly extensive scale with a view to improve the milk yielding capacity of the indigenous cows. The important European breeds of dairy cattle are Holstein Freisian Swiss, Jersey Guernsey and Ayrshire.

**Scenario of feed and fodder requirement & availability:**

There is tremendous pressure of livestock on available feed and fodder, as land available for fodder production has been decreasing. Scenario of feed and fodder availability till 2025 is as below: -

**Table 6: The projected demand and supply of the fodder:**

(In million tones)

Year	Supply		Demand		Deficit as % of demand (actual demands)	
	Green	Dry	Green	Dry	Green	Dry
	<b>1995</b>	379.3	421	947	526	59.95 (568)
<b>2000</b>	384.5	428	988	549	61.10 (604)	21.93 (121)
<b>2005</b>	389.9	443	1025	569	61.96 (635)	22.08 (126)
<b>2010</b>	395.2	451	1061	589	62.76 (666)	23.46 (138)
<b>2015</b>	400.6	466	1097	609	63.50 (696)	23.56 (143)
<b>2020</b>	405.9	473	1134	630	64.21 (728)	24.81 (157)
<b>2025</b>	411.3	488	1170	650	64.87 (759)	24.92 (162)

Source: Draft report of the working group on animal husbandry and dairying for five-year plan (2002-2007, Govt. of India, Planning Commission, August – 2001).

The above requirements have been worked out on the projected livestock population (equivalent to adult cattle unit) as below: -

**Table 7: Projected livestock estimates when converted into adult cattle unit (ACUs) massing are of their expected age profiles are as under: -**

Year	Cattle	Buffalo	Sheep	Goat	Equine	Camel	Total
1995	180.5	82.8	4.0	9.2	0.5	0.9	278.0
2000	187.1	87.7	4.1	9.9	0.4	1.0	290.0
2005	192.2	92.6	4.2	10.5	0.3	1.0	301.0
2010	197.3	97.5	4.3	11.2	0.3	1.0	312.0
2015	202.3	102.4	4.4	11.8	0.1	1.1	322.0
2020	207.4	107.3	4.5	12.5	0.1	1.1	333.0
2025	212.5	112.2	4.6	13.2	0.1	1.1	344.0

The estimated livestock population was converted to ACUs assuming that 350 kg of body weight =1 ACU in cattle, 450 kg=1 ACU in buffalo, 10 goats=1 ACU, 10 sheep=1 ACU.

Source: Draft report of working group for X plan for AHCD, Planning Commission, August 2001.

### Quality of feed & Fodder:

Livestock rearing in India is changing with the requirement of time as is also evident that demand for milch breed of cattle is going up as compared to dual or draught breed. Population of indigenous breed like Haryana, Nagori, Khilar i.e. dual & draught purpose breeds has declined more than milch breeds. In this globalize / market economy dependent agri-economy, milk production has to compete for growing fodder on good or able land. Thus milch animals have to be of high productivity and reproductive efficiency

The most common livestock feed resources are: -

1. Crop residues (Straw, stoves, haulms etc)
2. Grass land, alpine, sub-alpine, pasture land
3. Community lands, Common property resources, wasteland
4. Cultivated fodder
5. Forest lands
6. Cut and carry grasses
7. Novel unconventional feeds, top feeds, famine feeds
8. Coarse grain
9. Oil meals
10. Cereal bran, hulls, husks

11. Agro products

12. Fish meals

13. Bone meals .

### **Operation Flood:**

Government is actively supporting the dairy sector by implementing various schemes. It all started with the White Revolution under the title Operation Flood (OF) Programme launched in 1970. By promoting Anand Pattern of dairy cooperatives, OF envisaged sustained increase in resource productivity culminating in improved quality of life of milk producers and assured supply of quality of milk and other dairy products to consumers at reasonable price in a free market environment. Following the cooperative path, market oriented milk production and modernization of dairying, milk production, processing and marketing progressed significantly. The bedrock of Operation Flood has been village milk producers' cooperatives, which procure milk and provide inputs and services making modern management and technology available to members.

The objectives of Operation Flood included:

- Increased milk production ("a flood of milk")
- Augmenting rural incomes
- Ensuring fair prices for consumers

The programme was implemented with the assistance of World Bank and Food Aid from the European Economic Community (EEC). The commodities assistance was also provided from the World Food Programme in the form of milk powder and butter oil. In all, an amount of approximately Rs. 1750 crore was invested in the dairy cooperative sector. This amount was disbursed as 30% grant and 70% loan. The milk processing capacity established was 200 lakh litres per day and average rural milk procurement was 137 lakh litres per day. The programme was implemented between 1970-1996 and covered 170 milk sheds falling under 22 State Cooperative Federations.

In OF areas, the country has more than 1 lakh organized primary village dairy cooperatives at present with an aggregate membership of 1.1 crore producers. These primaries are federated into 170 district cooperative milk unions and further to state cooperative dairy federations. The dairy cooperative network is estimated to have collected close to 229 lakh kilograms per day in 2007-08 resulting in the payment of an aggregate amount exceeding Rs.7000 crores to the milk producers during the year

### **A SWOT Analysis of Dairy Industry in India Strengths**

- Enhanced milk production with consequently increased availability of milk processing.
- Improved purchasing power of the consumer.
- Improved transportation facilities for movement of milk and milk products.
- Increasing availability of indigenously manufactured equipment.
- Large number of dairy plants in public and cooperative sector besides several others coming up in the private sector.
- Vast pool of highly trained and qualified manpower available to the industry.
- Country's vast natural resources offer immense potential for growth and development of dairying

### **Weaknesses**

With our strengths we have to be aware of our weaknesses also.

- Tropical climate conditions.
- Seasonal fluctuations in milk production pattern.
- Species-wise variation (buffalo, cow, goat etc.) in milk quality received by milk plants.
- Lack of marketing avenues for the dairy produce.

### **Threats**

- Introduction of foreign products in Indian market.
- Increasing chemical contaminants as well as residual antibiotics in milk.
- Poor microbiological quality of milk.
- Export of quality feed ingredients particularly cakes under the liberalization policy.
- Deficiency of molasses, a rich source of energy and binding agent in feed industry and constituent of urea molasses mineral lick.
- Excessive grazing pressure on marginal and small community lands resulting in complete degradation of land.
- Extinction of the indigenous breeds of cattle due to indiscriminate use of crossbreeding programme to enhance milk production.
- The liberalisation of the Dairy Industry is likely to be exploited by multi-nationals. They will be interested in manufacturing milk products which yield high profits. It will create milk shortage in the country adversely affecting the consumers.

### **Opportunities**

In spite of all these problems and threats we have clear cut and tremendous opportunities before us

- Great improved export potential for milk products of western as well as traditional types.
- Established and expanding market for traditional dairy products.
- Increasing demand for fluid milk as well as value added products.
- By product Utilization for import substitution.
- Employment generation.
- Growing demand for milk and milk products.
- Liberalised policies in dairy sector.
- Availability of large resources of unconventional feeds and fodders
- Availability of diverse germplasm with unique features like heat tolerance, disease resistance, draftability and ability to survive and produce under stress conditions.

- Availability of animal production technologies for faster development and effective implementation.
- There should be an integrated structure of marketing for milk and milk products.
- Integrated structure for livestock marketing through regulated markets.
- Improved collection of data on contract basis through agencies.
- Market information intelligence system for milk and milk products.
- Development of software for project formulation for dairy enterprise.

### **Conclusion:**

Though India is the largest milk producer in the world, here the per animal milk production is very low. The cost of production of milk is also high due to the high cost of fodder. The quality of milch animals in India is also not upto the mark. But if we will overcome our deficiencies, the dairy industry is one of the most promising sector.

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